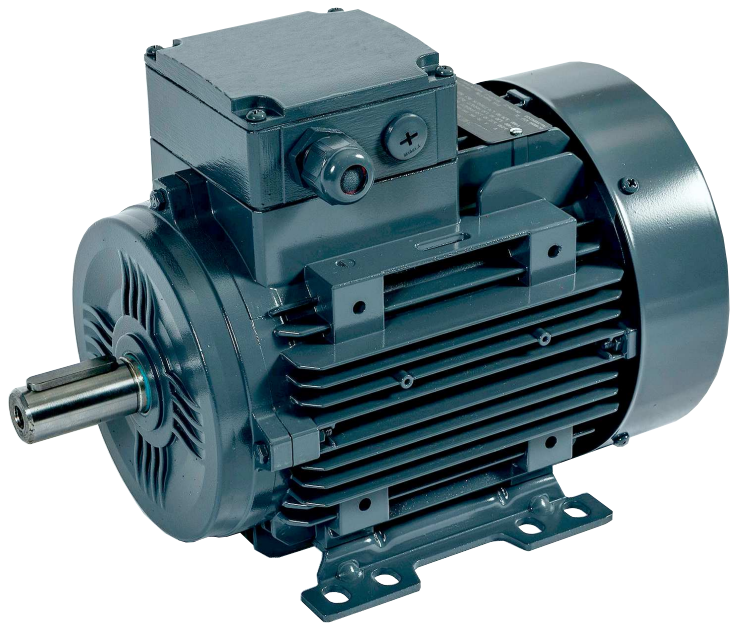


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## MOTOR SAFETY INFORMATION

# General safety instructions

To ensure your own personal safety as well as to avoid material damage, always comply with the safety-relevant instructions when carrying out any work. Also carefully comply with the 5 safety rules according to EN50110 -1 "Working in a no - voltage state" in the specified sequence.

## 5 safety rules

1. Disconnect the system.  
Also disconnect the auxiliary circuits, for example, anti-condensation heating.
2. Secure against reconnection.
3. Verify absence of operating voltage.
4. Ground and short-circuit.
5. Provide protection against adjacent live parts.

To energize the system, apply the measures in reverse order.

## Safety instructions in operation for qualified personnel

### Qualified personnel

Ensure that only qualified personnel work at the machine or close to the machine.

### Danger as a result of stationary parts under voltage (live parts)

Live parts represent a hazard. Touch protection against active (live) parts is no longer guaranteed if covers are removed. The minimum air and creepage distances may be fallen below (violated) when coming close to active parts. Touching or coming close can result in death, serious injury or material damage.

Carefully ensure that all of the covers are closed while operational.

First switch off and disconnect the machine if you must remove covers. Carefully comply with the "Five safety rules" (Page 2).

In operation, the terminal box must always be kept closed. It is only permissible to open the terminal box when the motor is stationary and in a no voltage condition.

### Risk of injury due to rotating parts

Rotating parts are dangerous. Touch protection against rotating parts is no longer guaranteed if covers are removed. Touching rotating parts can result in death, serious injury or material damage.

- Carefully ensure that all of the covers are closed while operational.
- First switch off and disconnect the machine if you must remove covers. Carefully comply with the "5 safety rules".
- Only remove the covers when the rotating parts have come to a complete standstill.

### **Risk of burn injuries as a result of hot surfaces**

Individual machine parts can become hot in operation. Burns can result when coming into contact with these parts.

- Never touch machine parts during operation.
- Allow the machine to cool down before starting work.
- Check the temperature of parts before touching them. If required, wear suitable protective equipment.

### **Faults in operation**

Any changes with respect to the normal condition can indicate that the machine is not functioning correctly.

- Higher power consumption, temperatures or vibration levels.
- Unusual noise or smells.
- Monitoring devices respond.

These changes can cause faults which can result in eventual or immediate death, serious injury or material damage.

- Immediately inform the service personnel.
- If you are in doubt, immediately switch off the machine, carefully observing the system-specific safety conditions.

### **Damage caused by condensation**

Humidity in the air can condense for intermittent duty or load fluctuations. Condensate can collect. Moisture can have a negative impact on the winding insulation or result in damage, such as corrosion.

- Ensure that any condensation can freely flow away.

### **Hazardous substances**

Chemical substances required for the setup, operation and maintenance of machines can present a health risk. Poisoning, skin damage, cauterization of the respiratory tract, and other health damage may result.

- Read the information in these operating instructions and the product information supplied by the manufacturer.
- Observe the relevant safety regulations and wear the personal protective equipment specified.

### **Substances that can be easily ignited and are flammable**

Chemical substances required for the setup, operation and maintenance of machines may be flammable. Burns and other damage to health and material may result.

- Read the information in these operating instructions and the product information supplied by the manufacturer.
- Observe the relevant safety regulations and wear the personal protective equipment specified.

## **Preparing for use, transport and storage**

### **Preconditions for safe lifting and transporting**

If you do not transport or lift the machine in a position appropriate for its construction, the machine can tip, slip into the lifting equipment or fall down. This can result in death, serious injury or material damage.

- Use only the load carrying device on the stator frame for lifting.
- Use the load carrying device appropriate for the machine position.
- Only use suitable rope guiding or spreading devices.

### **Center of gravity not centered**

If the center of gravity of a load is not located centrally between the attachment points, the machine can tip over or slip out of the lifting equipment and fall when it is being transported or lifted. This can result in death, serious injury or material damage.

- Comply with the handling instructions on the machine when transporting it.
- Be aware of the possibility of different loads on the sling ropes or lifting straps and the carrying capacity of the lifting equipment.
- Always take account of the center of gravity when transporting or lifting the machine. If the center of gravity is not located centrally between the attachment points, then position the hoisting hook above the center of gravity.

### **Risk of dropping and swinging when transported suspended**

If you transport the motor suspended from cables or ropes, the cables or ropes can break, e.g. as a result of damage. Further, if not adequately attached, the motor can swing. This can result in death, serious injury, or material damage.

- Use additional, suitable lifting equipment for transport and during installation.
- Two cables alone must be able to carry the complete load.
- Prevent the lifting equipment from sliding by appropriately securing it.
- When using two-cable lifting equipment, ensure that the maximum angle of inclination is  $\leq 45^\circ$  according to ISO 3266 (DIN 580).

Align the eyebolts so that the cables used for lifting are aligned with the planes of the eyebolts.

### **Toppling over or slipping of the motor**

The motor can slide or topple over if it is not correctly lifted or transported. This can result in death, serious injury, or material damage.

- Use all the lifting eyes on the machine.
- When using the lifting eyes on the machine, do not attach any additional loads or weight. The lifting eyes are only designed for the weight of the machine itself.
- Any eyes that are screwed in must be tightly fastened.
- Eyebolts must be screwed in right up to their supporting surface.
- Comply with the permissible eyebolt loads.
- When necessary, use suitably dimensioned lifting equipment, for example hoisting straps (EN1492-1) and load restraints (EN12195 -2).

## **Mounting**

### **Injury and material damage caused by inappropriate fastening material**

If screws of an incorrect property class have been selected or if they have been fastened to an incorrect tightening torque, they may break or become loose. This will cause the machine to move, which could damage the bearings. The rotor could smash into the machine enclosure and machine parts could be flung out of place. This can result in death, serious injury or material damage.

- Comply with the required property classes for screwed connections.
- Tighten the screwed connections to the specified tightening torques.

### **Injury and material damage caused by incorrect machine alignment**

If the machine has not been properly aligned, this will mean the fastening parts are subjected to stress/distortion. Screws may become loose or break, the machine will move, machine parts could be flung out of place. This can result in death, serious injury or material damage.

- Carefully align the machine to the driven machine.

### **Material damage caused by improper handling**

Mounting parts such as temperature sensors or speed sensors are attached to the machine and could be ripped off or destroyed as a result of improper handling. This could lead to machine malfunctions, extending even to total loss of the machine.

- Where necessary, use suitable steps when performing installation work on the machine.
- Do not stand on cables or attachments during installation. Do not use attachments as steps.

## **Electrical connection**

### **Material damage as a result of connection parts coming loose**

If you use fixing elements made from the wrong material or apply the wrong tightening torque, this could impair current transfer or cause connecting parts to become loose. This could result in material damage to the machine or even in total failure, which could in turn lead indirectly to material damage to the system.

- Tighten the screwed connections to the specified tightening torques.
- Observe any specifications regarding the materials from which fixing elements must be made.
- When performing servicing, check the fastenings.

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